What is claimed is:

1. In a solid oxide fuel cell (SOFC) for coproducing syngas and electricity by internal reforming of methane and carbon dioxide fabricated with an ion conductive solid oxide electrolyte, a catalyst electrode(anode) and an air electrode(cathode), the improvement comprising: said catalyst electrode(anode) is coated with Ni-YSZ type or perovskite type metal oxide.

2. The solid oxide fuel cell according to claim 1, wherein one side of YSZ (Yttria Stabilized Zirconia) solid oxide electrolyte is attached to a $LaSrMnO_3$ type air electrode(cathode) and the other side is attached to a catalyst electrode(anode) of Ni-YSZ type or perovskite type metal oxide.

3. The solid oxide fuel cell according to claim 1 or 2, wherein said Ni-YSZ type metal oxide has a composition of 40-55 wt% of Ni, 40-55 wt% of YSZ and 0-10 wt% of CeO_2 or MgO.

4. The solid oxide fuel cell according to claim 1 or 2, wherein said perovskite type metal oxide has a composition of $La_{1-y}Sr_yNi_{1-x}Cr_xO_3$ (x = 0-1 and y = 0-1).

5. In an electrochemical conversion system comprising a gas feed part(200), a reaction part(100) equipped with an electrochemical fuel cell and connected to said gas feed part and an analysis part(300) to measure and control reaction results of said reaction part, wherein the improvement comprises:

a mixed gas containing carbon dioxide and hydrocarbon is introduced to said reaction part(100) through said gas feed part(200),

said reaction part(100) is equipped with a solid oxide fuel cell (SOFC) with a solid oxide electrolyte attached to an air electrode(cathode) and a catalyst electrode(anode) of Ni-YSZ type or perovskite type metal oxide, and

a syngas and an electricity are simultaneously coproduced in said catalyst electrode(anode) by internal reforming of methane and carbon dioxide and electrochemical reaction.

6. The electrochemical conversion system according to claim 5, wherein said mixed gas has a volume ratio of CH_4: CO_2: H_2O: O_2: H_2: CO of 1: 0.4-0.6: 0.4-0.7: 0.01-0.2: 0-1: 0-1.

7. The electrochemical conversion system according to claim 5, wherein said system is applied to a process producing greenhouse gases, CO_2 and CH_4 as by-product, a process using hydrogen, natural gases and petroleum as heat source, a petrochemical process, a cement process, a process treating gases generated in landfill gas and thermoelectric power plants.

8. A process for preparing an electrochemical cell for internal reforming of methane and carbon dioxide, which comprises:

(a) preparing an aqueous solution of metal precursors having a composition of $La_{1-y}Sr_yNi_{1-x}Cr_xO_3$ (x = 0-1 and y = 0-1);

(b) adding malic acid to said aqueous solution of metal precursors for adjusting a mole ratio of malic acid to the total metal ions to 0.5-2.0;

(c) adding a pH regulator for adjusting pH of said aqueous solution of metal precursors to 1.5-3.5;

(d) drying and heat-treating said aqueous solution of metal precursors to obtain powder;

(e) sintering said powder at 800-1000□ for 1-5 hr under air atmosphere to obtain a perovskite type catalyst having a composition of $La_{1-y}Sr_yNi_{1-x}Cr_xO_3$ (x = 0-1 and y = 0-1); and

(f) coating one side of a planner-type solid oxide electrolyte with the catalyst electrode slurry prepared above and the other side with an air electrode material (LSM), drying and sintering to prepare the electrochemical cell in a disk shape.

9. A process for preparing an electrochemical cell for internal reforming of hydrocarbon and carbon dioxide, which comprises:

(a) preparing an aqueous precursor solution having a composition of 40-55 wt% of Ni, 40-55 wt% of YSZ and 0-10 wt% of CeO_2 or MgO;

(b) adding and mixing 0.3-1.2 wt% of methyl cellulose, 0.8-1.5 wt% of carbonylmethyl cellulose and 1.3-2 wt% of polyethylene oxide as a binder, and 1-5 wt% of isopropylalcohol (IPA) as a dispersant based on 100 wt% of solid content to said aqueous precursor solution, and then ball-milling to obtain a Ni-YSZ type anode slurry; and

(c) coating one side of a planner-type solid oxide electrolyte with said catalyst electrode slurry prepared above and the other side with an air electrode material (LSM), drying and sintering to prepare the electrochemical cell in a disk shape.